Centura Health – St. Mary-Corwin Medical Center in Pueblo, Colorado, found that reducing energy costs was a relatively painless operation. The 400-bed hospital was already working with an energy service company (ESCO) for preventive maintenance of its heating, cooling and ventilating systems. When the ESCO suggested a package of equipment upgrades that would pay for itself through energy savings, facility supervisor Joe Colistro and manager Jim Skelly were sold on the concept. Besides, it seemed like an excellent way to extend the capabilities of an already approved federal grant.

"In 1986 we were definitely looking at the energy aspect," Colistro said. "But with a tight budget, it can be difficult to convince upper management to spend money for upgrades. The energy service company went straight to the hospital's CEO with a proposal for a performance contract, and we got a good start on what we needed."

The energy performance contract projected an energy savings of $161,500 per year. More importantly, the ESCO agreed to accept 95 percent of the hospital's actual savings over a seven-year period as payment for all costs not covered by the grant. At the end of the agreement in 1995, St. Mary's got to keep the equipment and use all of the energy savings to make further improvements to its facility.

Energy Remedies Prescribed for Hospital

Project Description:

The constant operation of machinery, lights and laundry facilities in a hospital can generate unwanted heat that affects the comfort of both patients and staff. An energy audit of St. Mary's showed that modifications to its cooling system would increase comfort and result in big cost savings.

Modifications included an increase in cooling capacity to meet current demand and enhancement of the existing cooling tower. The addition of a flat-plate heat exchanger allowed them to turn off chillers during mild weather, simply taking advantage of cooler outdoor air. Joining two separate chilled water loops allowed a new, highly efficient, 700-ton chiller to handle the cooling load for the entire facility so that two smaller chillers could be retired from service.

"It was definitely worth it for us to do the performance contract. We really benefited from the timely work, good subcontractors and the expertise of the energy service company."

Facility Supervisor Joe Colistro

In addition to mechanical modifications, the company installed a new computerized energy management system so that the hospital staff can monitor and control the chilled water system, air handling systems and boilers from a central location. The energy management system provides instantaneous readings of room temperature, humidity and energy use throughout the facility and automates many of the systems.

Other upgrades included new starters and two-speed motors for 20 large air-handling units. This modification cuts energy costs by allowing the units to operate at lower speed during the night when space cooling needs are substantially less.

An Energy Performance Contracting Success Story

PROJECT DETAILS

Facility: Centura Health – St. Mary-Corwin Medical Center, Pueblo, Colorado

Facility Type: Hospital

Facility Size: 523,877 square feet

Type of Agreement: Performance contract financed by energy service company through shared savings with a guaranteed payment of financed amount

Project Cost: $764,347 including a $26,586 annual maintenance agreement ($284,950 grant included in total)

Energy Cost Savings: $161,500 per year projected; $178,077 per year actual

Contract Term: 7 years (contract completed in 1995)

Projected Internal Rate of Return: 16% (excluding grant and financing effects)

Projected Profitability Index: 1.4 (excluding grant and financing effects)

Energy Efficient Features:

- Computerized energy management system
- New starters and two-speed motors for 20 air-handling units
- Cooling tower modifications
- New high-efficiency chiller
- Improved chilled water delivery system

Benefits:

- Eliminated CFCs
- Improved comfort for patients
- Reduced maintenance of aging equipment

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Benefits/Results:

Colistro found that energy performance contracting can be a satisfactory experience that frees up hidden resources for much-needed capital improvements. Even without grants or utility rebates, energy-saving projects generate their own capital.

"It was definitely worth it for us to do the performance contract," he said. "We really benefited from the timely work, good subcontractors and the expertise of the energy service company."

The performance contract exceeded expectations by generating average annual energy savings of about $178,000 over seven years. Now that the project has been paid for and the contract completed, St. Mary's plans to spend the energy cost savings to upgrade lighting systems, modify the boiler plant and install variable-speed motors on other air-handling units.

New technologies such as the computerized energy management system provide an integrated approach to building energy management that keeps equipment running smoothly with few, if any, disruptions to patients or staff. The energy service company often can spot problems before they arise or suggest modifications to current operations that will produce even more energy savings in the future.

Process:

Colistro recommends energy performance contracting as "a good program when it's done right." The aging equipment found in many hospitals can present special problems, such as difficulties in attaining efficiency and control strategies.

"An important aspect of our relationship with the energy service company was the flexibility we both needed when negotiating energy savings strategies," Colistro said. "It's important to know your own systems and equipment, and to work closely with the company to make sure the upgrades meet people's needs. After all, the bottom line here is the comfort and health of the patients."